

Choosing between similarly (un)desirable options: Framing of support or opposition and choice
confidence

THESIS

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Abstract

Previous work has demonstrated that when people have a clear preference for one option over another, thinking about their attitudes as opposing the worse option (opposition frame) versus supporting the better option (support frame) can lead people to hold their attitudes with more certainty (Bizer & Petty, 2005). Left unclear is the role of mindset framing when choosing between two similarly desired options, that are either equally favorable or equally unfavorable. It has been shown that those who have to reject one of two negative options are equally satisfied as those who have to choose one of two positive options. Support or opposition mindset framing can be added as an additional factor than can “match” or “mismatch” the focus that occurs in choosing or rejecting. Study 1, participants read about two candidates in a 2(information valence: positive vs negative about both candidates) x 2(support frame: positive vs negative) between subjects design. Next, participants chose to vote for a candidate and reported certainty in their choice. Those in the positive-information/support-frame condition were more certain about their choice than in any other condition with certainty being relatively the same for the other three conditions for differences across means. In Study 2, we examined whether a three-variable match was accountable for the increase in confidence seen in Study 1 (i.e., positive information/support frame/choose). To test this, participants were asked to either chose or reject one of the candidates. Study 2 replicated the findings of Study 1 for the choice condition, and in the rejection condition those who were framed to oppose similarly undesired options became more confident in their rejection decision (i.e. oppose frame/negative information/reject). Study 3 compared the three-variable matching conditions with a no frame condition. The pattern from Study 2 was replicated when a support or opposition frame was present. When no frame was given, however, participants seemed to naturally approach choice as a support frame (i.e., greater certainty when information was positive rather than negative) and rejection as an opposition frame (i.e., greater certainty when information was negative rather than positive).

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Introduction

How do people make choices? One possible way is to evaluate the two options in a choice and pick the one that is the most favorable. Sanbonmatsu and Fazio (1990) showed that people use their pre-existing attitudes toward each choice option to make decisions, especially when the situational demands are to make a quick decision. Slovic, Finucane, Peters, and MacGregor (2002) introduced the idea of an affect heuristic, which is a type of mental shortcut that causes people to make decisions based on their current feelings and emotions. However, much research on decision making focuses not on the use of existing evaluations or emotions, but rather, on features of the choice setting. Tversky and Kahneman (1981) is a great example of this. They showed that people tend to weigh their choice options differently when the options are framed as gains versus when the options are framed as losses.

There has been much research done to look at preferences formed in the process of making a choice. The current thinking is that preferences are constructed while the person gathers information about the options in a choice. In this sense, preferences are highly malleable. This would mean that people do not start with a set preference when making decisions, and focusing people on a specific dimension of judgment or on a specific domain could change their preference (sometimes even reversing their choice, Slovic, 1995). Some key preference construction factors include anchoring, eliminating common elements, and the number of choice alternatives (Payne, Bettman, & Johnson, 1992, 1993). When choosing between two options, research has shown that people process any relevant information and have to decide which characteristics they were willing to trade off for a more valued characteristic (Keeney & Raiffa, 1976).

Choice Confidence

Once people have made a choice, they might be quite satisfied with their choice and hold it with a high level of confidence (that they made the right choice), or they might be dissatisfied and be somewhat doubtful about the quality of the choice. However, considerably less research has examined choice confidence and its consequences than has examined preference construction itself. One instructive literature for choice confidence might lie in the work on holding individual attitudes with confidence versus doubt.

Attitudes are for action. That is, one reason to evaluate objects in our environment is to determine how to act toward those objects – to approach the object or avoid it. The contexts in which attitudes guide behaviors have been spelled out in many ways, with the focus revolving around the concept of attitude strength. Strong attitudes have been defined as being durable and impactful (Krosnick & Petty, 1995). *Durable* refers to an attitude's ability to persist over time and resist counterarguments, whereas *impactful* means that attitudes affect thoughts and behavior. One key feature that predicts how durable and impactful an attitude will be is the certainty with which the attitude is held. Over the years there have been numerous studies that have shown that attitudes held with greater certainty are more likely to predict behavior than attitudes held with less certainty (for review see, Fazio & Zanna, 1978; Krishnan & Smith, 1998; Rucker et. al., 2008). If attitudes held with greater certainty are more likely to last over time and to guide behavior, it could well be that choices held with greater confidence or certainty would also be more likely to last over time and guide behavior.

Indeed, recent research supports this idea, at least in regard to persistence of choices over time. That is, if a choice is held with confidence, it should be durable over time in that the same choice would be made at a later point in time if given another opportunity to make the same choice. One study that provided support for this notion was done by Folke et al. (2016). In that

study, they were able to show that when confidence in a choice is low, participants are more likely to change their mind when presented with the same choice again later. However, when their confidence in the initial choice is high they are more likely to make the same choice again later. This work is important because it shows that choice confidence can be predicative of future behavior. If a practitioner wants someone to remain consistent in their choices over time (such as choosing the same candidate when in the ballot box as they chose after an earlier debate or after an earlier political ad), the practitioner would need to increase confidence in that initial choice.

Rejection as Choice

Until very recently there has been no research looking at rejection as a choice. However, recent research has taken decision making sciences a step further by manipulating whether or not participants were asked to choose or reject one of two options (Perfecto, Galak, Simmons, & Nelson, 2017). Their research found that choosing the more attractive option in a dichotomous choice felt very similar to rejecting the least attractive option in a dichotomous choice. These researchers offered up a novel framing effect that they called attribute matching. They showed when people match a salient aspect of the decision frame with that of the decision options (i.e., choosing from two positive options or rejecting one of two negative options), their decision confidence and feelings of ease increase. They showed this effect by asking people to choose (or reject) one of two attractive faces or two unattractive faces in the first study. In a second study, participants chose or rejected one of two positive words or one of two negative words.

Support Mindset Framing

The other focus of the current research builds on the idea of valence framing. Valence framing was introduced by Bizer and Petty (2005). The idea behind this concept was that framing one's attitudes negatively (i.e., as opposition to a negative object) would lead to stronger

attitudes than attitudes framed positively (i.e., as support for a positive object). Their research was conducted in the political domain, where they presented participants with two candidates, one being conservative and the other being liberal. Based on their political affiliations, research participants would in theory have one favorable option and one unfavorable option, leading to the opposition of one candidate and the support of the other. Bizer and Petty (2005) demonstrated that attitudes framed in terms of opposition were more resistant to counter-attitudinal messages than attitudes framed in terms of support. Notably, in these studies they framed the participants in terms of support or opposition after they distinguished the candidate that they preferred.

Bizer and Petty followed up their initial valence framing study with two additional studies. In their next study, they used the same type of method as their first study, with one relatively favorable candidate and one relatively unfavorable candidate (Bizer, Larsen, & Petty, 2011). Bizer et al. (2011) found that negatively framed mindsets (opposition to their undesired candidate) are held with more certainty and were more predictive of behavior than positively framed mindsets (support for their desired candidate). Another study on valence framing showed that these effects only occur when the presented information is personally relevant to the participants and when the participants are not under cognitive load (Bizer, Žeželj, & Luguri, 2013). This research showed that depth of processing was a moderator for the valence framing effect, such that only those who were not under a cognitive load were showing effects from valence framing. The effect was relatively nullified for those asked to remember a sequence of numbers during the experiment.

When thinking of past elections, the previous valence framing research can address those voters who were strongly rooted in either liberal or conservative ideologies. They likely held

their preferences with greater confidence and acted on those preferences to a greater degree if they spontaneously thought of their preferences as opposition to their unpreferred candidates rather than support for their preferred candidate. However, the previous research may have missed the more moderate and independent voters who may not have had a clear preference between the candidates. In the 2016 U.S. Presidential election, many people opposed both candidates Donald Trump and Hilary Clinton and it showed on election day through turn out, as 40% of registered voters did not vote, which is relatively the same as previous elections. Gallup polls have shown these two candidates to be two of the most unfavorable candidates in U.S. history. In that case, they were similarly unfavorable candidates. Yet, while many held opposition mindset, voter turnout did not increase. However, before the most recent election between Donald Trump and Hilary Clinton, there had been a few elections that had similarly favorable candidates. During the McCain versus Obama election each candidate was viewed as relatively equally favorable according to Gallup polls following the election. But the existing valence framing research did not address these types of situations in which both candidates might be supported or opposed (rather than supporting one and opposing the other). Thus the existing research leaves an open question: what role might valence framing (i.e., support or opposition mindsets) play in these instances between two similarly (un)desired outcomes?

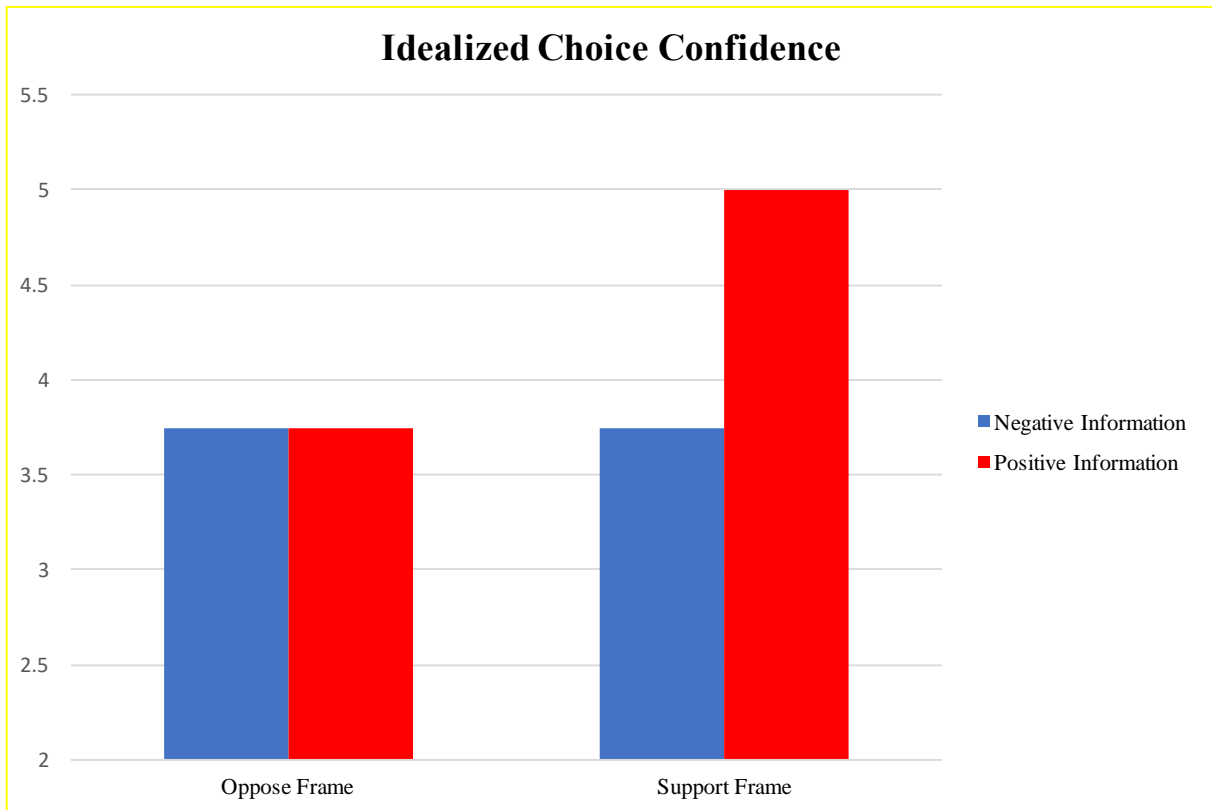
Present Research

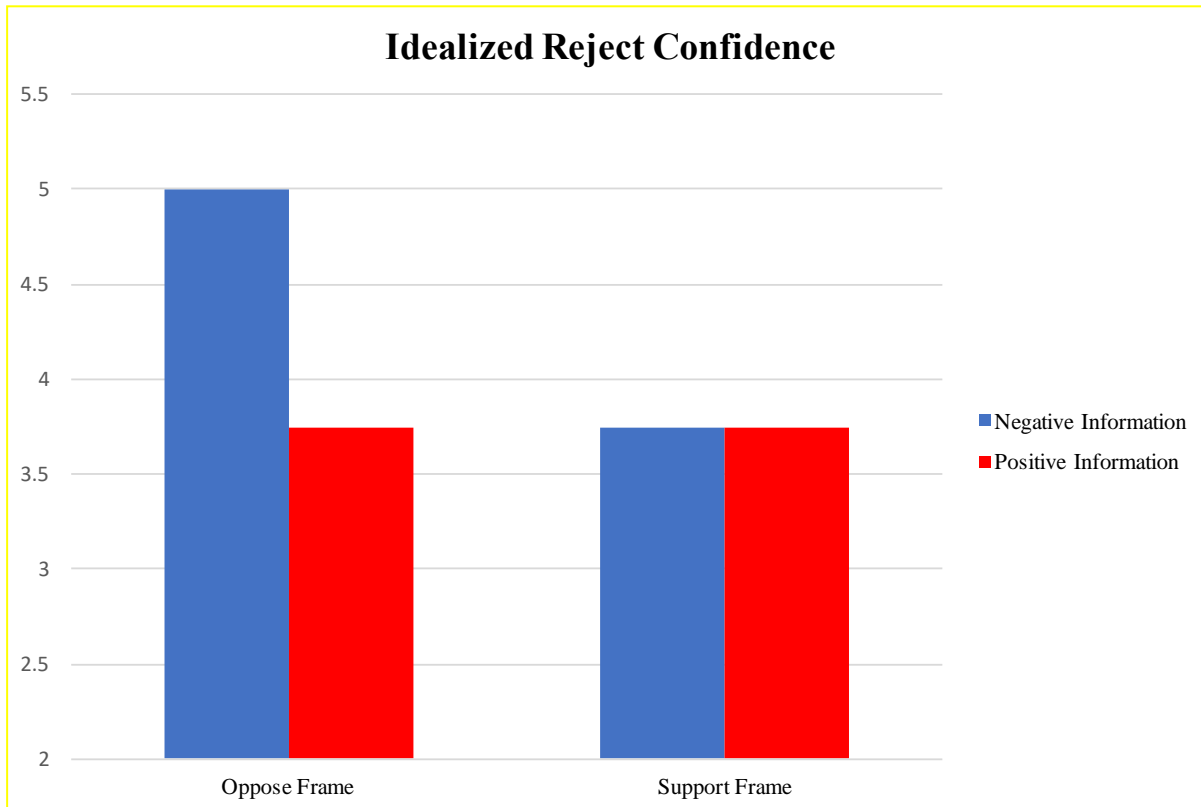
It has been shown that difficult choices lead people to have lower confidence in the choice compared with easy choices (Litt & Tormala, 2010). However, support or opposition mindsets could further change the confidence people have in difficult choices by making people look for more positive or more negative features of the choice options before having to make their choice. Thus, unlike previous valence framing research focused on times when people are

given one candidate they support and one candidate they oppose, the present research changed the dynamic to present participants with either two similarly desired or similarly undesired candidates. This is an important distinction because individuals are not always faced with a choice between one good and one bad option. As such, I aimed to frame participants' mindsets on both options in order to get them thinking about both candidates simultaneously.

I hypothesized that those presented with two positive candidates would be more confident when having to make a choice than those presented with two negative candidates because they know that whoever they pick would do a relatively good job. With two positive candidates, there are plenty of positive features to find that support a choice. If participants are simultaneously opposing two options but trying to make an affirmative choice, I would predict that they would be less confident than those simultaneously supporting two options. If the opposition focuses the person on potential down sides of the candidates, that should make it harder to find and focus on positive features that support a choice. These results should change and actually flip when participants are asked to reject instead of asked to choose. When rejecting, it should be easier to reject when the person has two relatively negative candidates who are opposed. This should increase the confidence in that condition. Rejection should be harder, though, when dealing with two positive candidates, when thinking about support for the candidates, or both. Based on all of this, I would predict the most confidence and the strongest behavioral intentions to fall in the two conditions that match the valence of the mindset frame, the valence of the information, and the nature of the choice action (i.e., support/positive information/choose and oppose/negative information/reject). Confidence should be lower when the frame, valence of information, and choice action are inconsistent (mismatching) in some way.

It is important to note that shifting from a 3-way match with choice actions (i.e., choice/positive information/support frame) to a 3-way match with rejection actions (i.e., rejection/negative information/opposition frame) actually represents a 2-way interaction between the valence of the information and the framing of mindset. With choices, moving from support frames to opposition frames should weaken the effect of information valence (because a difference between a 3-way match among choice, positive information, and support frame and a mismatch among choice, negative information and support frame reduces when both cells include mismatching elements – i.e., choice/positive information/opposition frame and choice/negative information/opposition frame). That same trend continues with rejections, however. That is, the pair of mismatching cells would fall on the support frame side (i.e., rejection/positive information/support frame and rejection/negative information/support frame), and a 3-way match only occurs with rejection/negative information/opposition frame. For the current predictions to represent a 3-way interaction would require a pattern like the positive influence of information valence under choice/support frame conditions to become a negative influence under reject/support frame conditions. But that should not happen in the current case, instead, the reversing of the effect of information valence moves from the support frame condition with choice to the opposition frame condition with rejection, thereby continuing the overall Information Valence X Support Framing pattern across the choice and rejection decisions. Below are the idealized results for confidence when people are faced with either a choice or a rejection. These idealized results represent the same idealized pattern for behavioral intentions.





Study 1

All the previous valence framing work has been done with an established preference between two candidates. Study 1 examined the cases where there was no clear preference. In this study, participants were presented with either two similarly favorable or two similarly unfavorable candidates. They subsequently had their mindset framed about both candidates in terms of either support or opposition. In this study, they were simply asked to choose between the two candidates.

Methods

Participants and design. One hundred and seventy undergraduate students at Ohio State University took part in this study in return for credit in their introduction to psychology courses. Participants were told that they would be presented with two candidates running for an open seat on the local city council. The candidates presented to them were fictional and named Kris

Walker and Sam Austin. Study 1 was conducted with a 2x2 design: information valence was manipulated to present participants with either positive or negative candidates and support mindset was manipulated to frame participants mindsets in terms of either support or opposition.

Procedure. Participants came into the lab and were given an online survey using the survey program Qualtrics. They were randomly assigned to be presented with a list of 6 traits about two fictional candidates, Kris Walker and Sam Austin, in a fictitious upcoming local city council election. Instead of listing the candidates as conservative or liberal, traits about their life and education were used (See Appendix). In the positive candidates condition, participants were presented with six relatively positive traits about each candidate. In the negative candidate's condition, participants were presented with two relatively positive traits about each candidate and four relatively negative traits about each candidate. Participants were subsequently asked about their levels of support or opposition for both candidates depending on which condition they were randomly assigned to.

After having their mindset framed, participants were asked to choose between the candidates in a dichotomous choice. Following this choice, levels of choice confidence, subjective ambivalence, and behavioral-intentions were measured. Towards the end of the study, there was attention check to ensure that participants had actually taken the time to read the traits about each candidate, and thoughtfully and honestly answered all of the questions. Participants were finally asked questions about their demographic to see the range of people included in this study. Following completion of the study, participants were debriefed and informed that the candidates presented to them in this study were fictitious and that this deception was necessary in order to get more accurate results.

Independent Variables

Information Valence. Participants were given a set of six characteristics about 2 fictitious candidates for a local city council seat. In the positive condition, the six characteristics were relatively positive for each candidate. In the negative condition, there were two relatively positive characteristics for each candidate with 4 relatively negative characteristics (see Appendix).

Mindset Frame. For the support frame, participants were asked, “How much do you **support** Kris Walker in this election?” on a 6-point scale anchored “Not at all” and “Very Much.” They were also asked, “How much do you **support** Sam Austin in this election?” on a 6-point scale anchored “Not at all” and “Very Much.” These measures are intended to get participants mindset framed so that they consider the positive features of both the candidates presented to them.

For opposition frame, participants were asked, “How much do you **oppose** Kris Walker in this election?” on a 6-point scaled anchored “Not at all” and “Very Much.” They were also asked, “How much do you **oppose** Sam Austin in this election?” on a 6-point scale anchored “Not at all” and “Very Much.” These measures are intended to get participants minset framed so that they consider the negative features of both the candidates presented to them.

Dependent Variables

Choice Confidence. Participants answered, “How certain do you feel about your choice of candidates?” This item was measured on a 6-point scale (1=Not at all Certain, 6=Very Certain). Participants also answered, “How confident are you in your choice of candidates?” This item was measured on a six-point scale as well (1=Not at all Confident, 6=Very Confident). These questions significantly correlated, and were averaged together to get a confidence score, $r=.860, p<.001$.

Choice Ambivalence. Participant's levels of subjective ambivalence were measured using three 6-point scales, anchored with "Not at all" and "Very Much." Participants were first asked, "Please rate how conflicted you feel about your choice of candidates." They were then asked, "Please rate how mixed you feel about your choice of candidates." Then finally asked, "Please rate how indecisive you feel about your choice of candidates." These questions significantly correlated, and were averaged together to get an ambivalence score, $\alpha=.893$.

Behavioral Intentions. Participant's behavioral intentions were measured using four 6-point scales, anchored with "Very Unlikely" and "Very Likely." Participants were first asked, "How likely would you be to volunteer for the campaign of the candidate you chose?" They were then asked, "How likely would you be to try to persuade others to share your opinion of your candidate?" Followed by, "How likely would you be to donate to the campaign of the candidate you chose?" They finally answered, "How likely would you be make a Facebook post for the candidate you chose?" These questions significantly correlate, and were averaged together to get a behavioral intentions score, $\alpha=.892$.

Results

On confidence, Mindset Frame produced a marginal main effect, $t(163)=1.925$, $p=.056$, where those asked to consider how much they support each candidate tended to be more confident than those asked to consider how much they opposed each candidate. There was also a marginal main effect of Information Valence, $t(163)=1.81$, $p=.071$, where those who received positive information about both candidates were more confident than those who received negative information about both candidates. Finally, there was also a tendency toward an interaction between Mindset Frame and Information Valence, $t(163)=1.634$, $p=.104$, where those with positive information tended to have higher confidence when they were framed in terms of

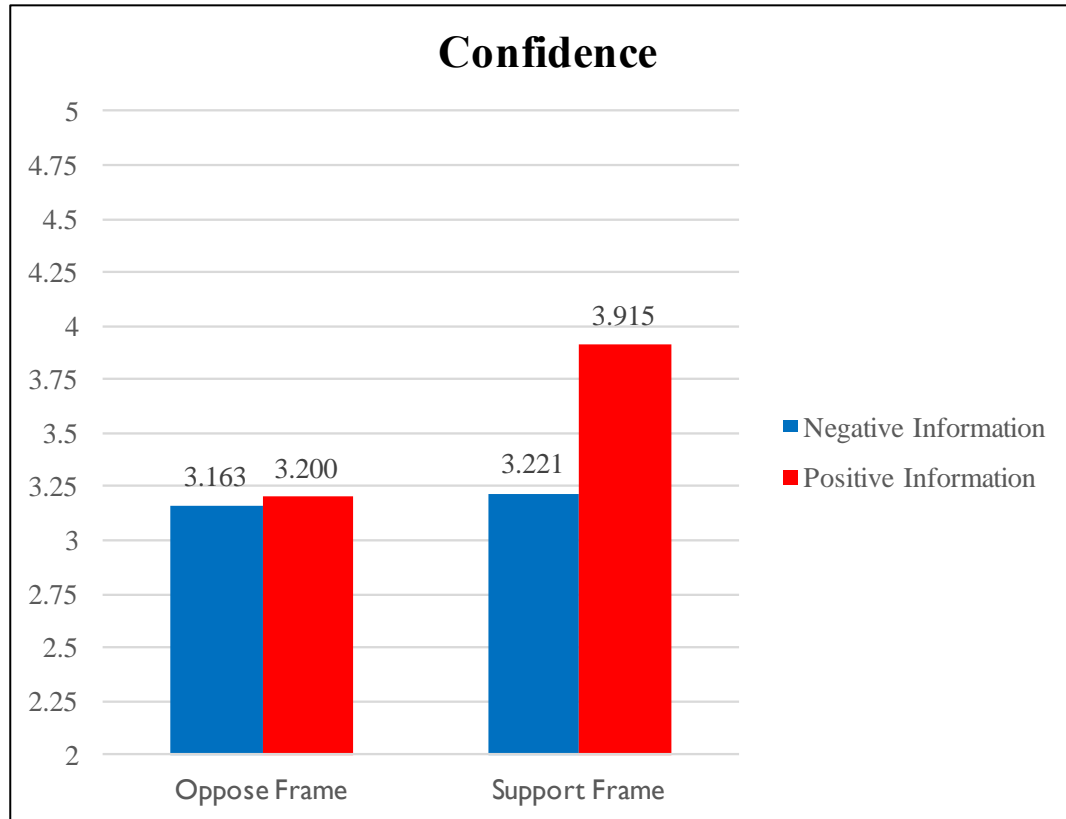


Figure 1. Study 1 Effects of Information Valence and Mindset Frame on confidence scores.

support. The general pattern observed in this study was that those in the positive-information/support-frame condition ($M=3.91$) were more confident in their choice than any other condition with certainty being relatively the same for the other three conditions ($M_s = 3.16, 3.20, 3.22$, See Figure 1).

For ambivalence, there were no main effects and no interactions approaching significance, as participants were relatively equally ambivalent across conditions ($F_s < 1$).

On behavioral intentions, Mindset Frame tended to have an influence, $t(163)=1.683$, $p=.094$, where those who considered their support for the candidates reported stronger behavioral intentions than those who considered their opposition to the candidates. There was a significant main effect of Information Valence, $t(163)=2.784$, $p=.006$, where those who received positive

information reported stronger behavioral intentions than those who received negative information. Again, the general pattern was that those in the positive- information/support-frame condition ($M=2.665$) had stronger behavioral intentions about their choice than in any other condition, ($M_s=2.402, 2.157, \& 1.907$, see figure 2).

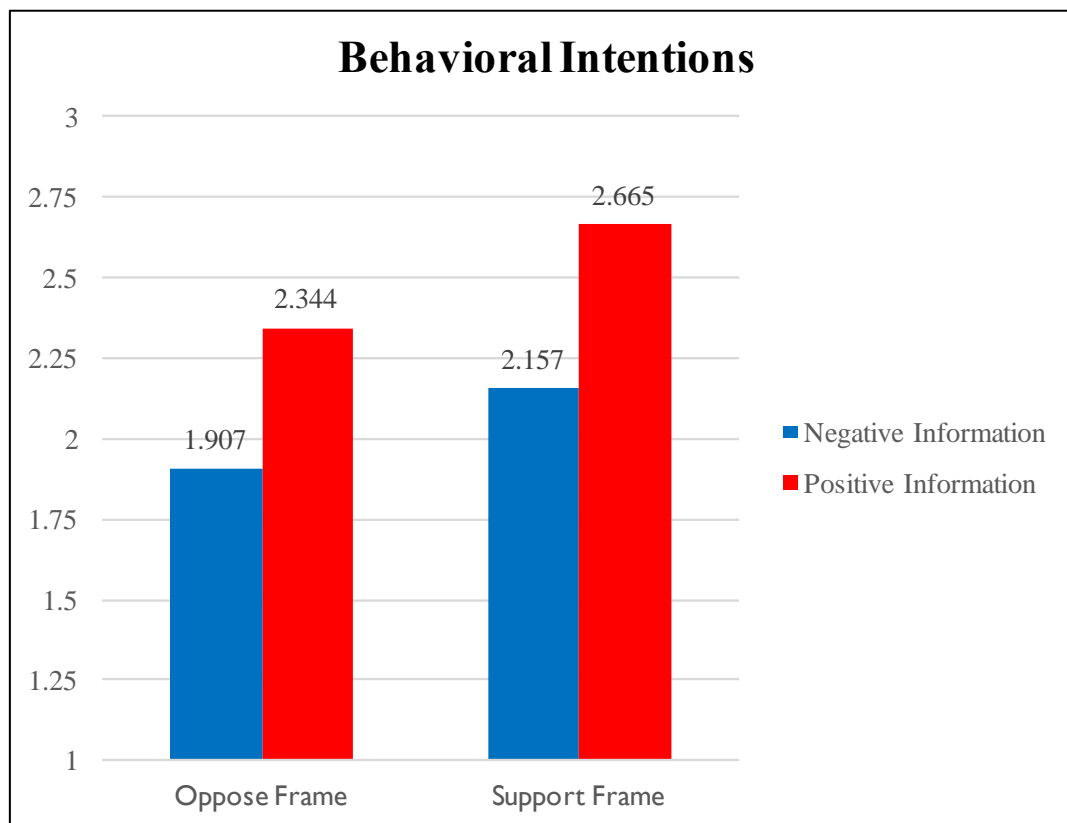


Figure 2. Study 1 Effects of Information Valence and Mindset Frame on behavioral intentions.

In order to examine whether having more confidence would lead to stronger behavioral intentions, using the PROCESS macro (Hayes, 2013) I tested two mediation models (Model 4) in which confidence mediated (a) the main effect of Information Valence and (b) the interaction of Information Valence and Mindset Frame on behavioral intentions (see Figures 3 & 4). The Information Valence main effect parallels portions of the pattern of choice satisfaction reported by Perfecto et al. (2017). As noted above, Information Valence had a significant effect on behavioral intentions. In the mediation model, confidence also had a significant effect on

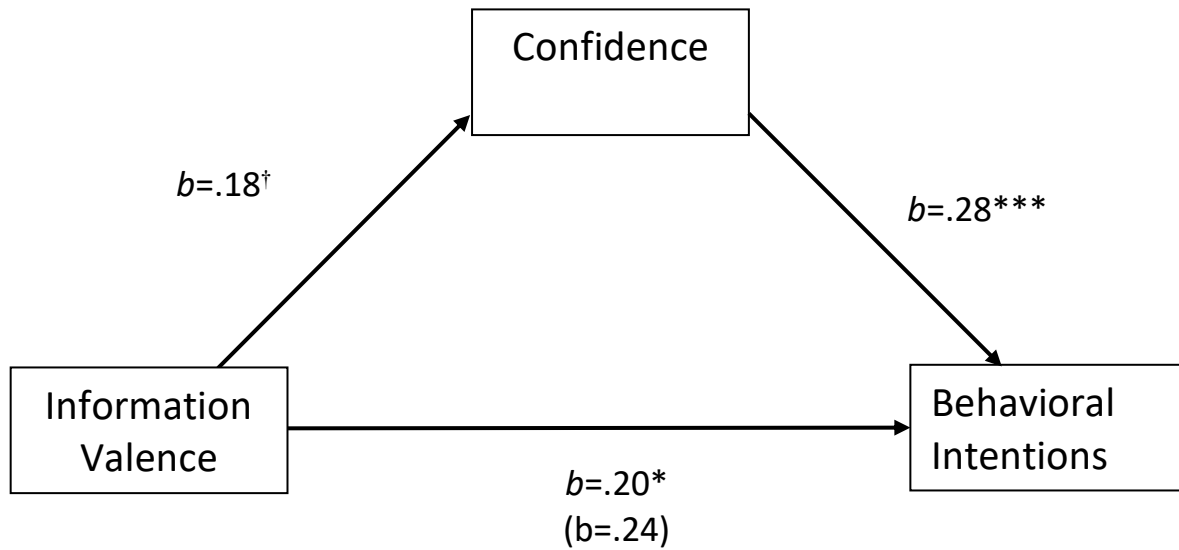


Figure 3. Confidence mediating the main effect of information valence on behavioral intentions.

$^{\dagger}p<.10$ $*p<.05$, $**p<.01$, $***p<.001$

behavior, such that high levels of confidence led to stronger behavioral intentions. When controlling for the confidence mediation, the direct effect remained statistically significant $b=.20$, $t(163)=2.469$, $p=.015$. The indirect effect through choice confidence was also statistically significant using 5,000 percentile 95% confidence intervals $b=.05$, 95% CI [.001, .135].

I also tested a mediation model (Model 4) in which confidence mediated the interaction between Information Valence and Mindset Frame on behavioral intentions (Figure 4). In this

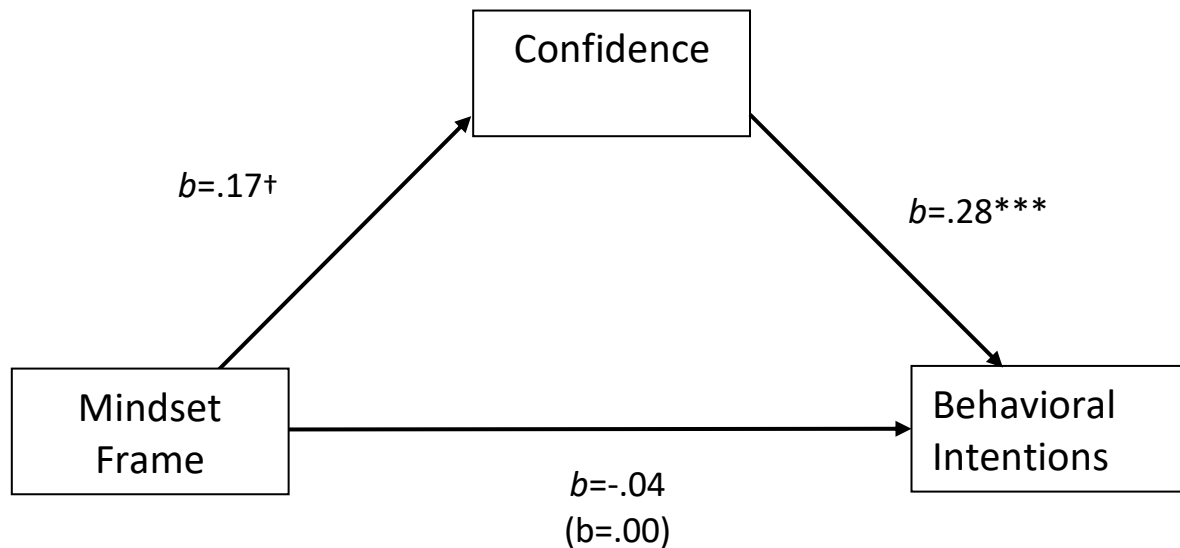


Figure 4. Confidence mediating the effects of the interaction between Mindset Frame and Information Valence.

$^{\dagger}p<.10$ $*p<.05$, $**p<.01$, $***p<.001$

model, confidence had a significant effect on behavior, such that high levels of confidence led to stronger behavioral intentions. When controlling for the level of choice confidence, the direct effect of the interaction was not statistically significant, though neither was effect when choice confidence was not controlled. The indirect effect was also not statistically significant using 5,000 percentile 95% confidence intervals $b=.05$, 95% CI $[-.001, .116]$.

Discussion

Study 1 provided evidence that opposition mindsets do not always lead to increased confidence in one's choice. There are two clear differences between this study and the original valence framing work: dual framing and similarly desirable options. The original work only framed participant's mindset on the comparison between unequal candidates and set up scenarios where there would be a clearly desired option.

The condition with the greatest amount of confidence in Study 1 was where the mindset frame and information valence were both matching the choice (i.e. support frame/positive information). If the match relies on the choice alongside the positive information and support frame, however, then it should also be possible to create a match with negative information and opposition frames if the decision was to reject an option rather than choose one. I examined that possibility in Study 2.

Study 2

Following Study 1, I theorized that a matching among the information, frame, and choice was causing these results. In order to test this, I wanted to see if I could increase confidence within the negative information, opposition frame condition by asking participants to reject a candidate instead of choosing one. The Perfecto work focused on matching a salient aspect of the decision action (i.e., choosing vs. rejecting) with that of the decision options themselves (i.e., positive vs. negative options) to examine their decision confidence and feelings of ease increase.

One could imagine this effect being expanded past the matching of decision actions and the type of options they are presented. I proposed that support mindsets should be included in this attribute matching process. Thinking of things in terms of support or opposition could increase the confidence even further. When those are all in the same direction (i.e., support frame/positive information/choice or oppose frame/negative information/rejection) I would predict that people would be more confident and willing to act. When thinking of terms of support, people are more primed to focus on reasons to support and by having these reasons to support readily available that should make choosing one of those two options easier than if they didn't have that frame. The same could be said for opposing when people are faced with a rejection. In order to accomplish this, we kept much of the design of study 1 and added a manipulation of choice by asking participants to either choose or reject one of the candidates. My aim with study 2 was to examine the matching of valence of Information Valence, Mindset Frame, and Decision Action would be consistent.

Methods

Participants and design. Three hundred and forty-three undergraduate students at Ohio State University took part in this study in return for credit in their introduction to psychology courses. Study 2 has a 2x2x2 design: information valence was manipulated to present participants with either positive or negative candidates, valence framing was manipulated to frame participants mindsets in terms of either support or opposition, and choice was framed in terms of choosing or rejecting.

Procedure. As in study 1, participants came into the lab and were given an online survey using the survey program Qualtrics. Participants were again told that they would be presented with two candidates running for an open seat on the local city council. The same fictional

candidates were used from study 1 named Kris Walker and Sam Austin. Before reading about the two candidates, participants were told they would either be choosing or rejecting and that they should either think about candidates in terms of support or opposition depending on the condition to which they were randomly assigned. The traits used for the two candidates were the same used in study 1 for both the positive and negative conditions. Then participants had their mindsets framed in terms of either support or opposition, the manipulation used for this study was a stronger manipulation, adapted from the measures used by Bizer and Petty (2005), than the one used in study 1

Next, participants were asked to either choose or reject one of the two candidates, again in a dichotomous choice. The same questions were used to measure confidence, subjective ambivalence, and behavioral intentions from study 1. However, in the rejection condition, questions about behavioral intentions were framed in terms of actions against the candidate they rejected. Towards the end of the study, there was attention check to ensure that participants had actually taken the time to read the traits about each candidate, and thoughtfully and honestly answered all of the questions. Participants were finally asked questions about their demographic to see the range of people included in this study. Following completion of the study, participants were fully debriefed and informed that the candidates presented to them in this study were fictitious.

Independent Variables

Mindset Frame. For this study, stronger frame manipulations were used to make people framed even more in terms of either support or opposition. Participants in the support condition were asked, “How strongly do you support Kris Walker in this election?” and “How strongly do you support Sam Austin in this election?” These questions were answered on a 5-point scale

anchored with “1 - I don't support “” at all” and “5 - I support “” intensely.” Next participants were asked, “How qualified is Kris Walker for this position?” and “How qualified is Sam Austin for this position?” These questions were answered on a 7-point scale anchored with “1 - Not at all qualified” and “7 - Very qualified.” Then participants were asked, “When considering Kris Walker as a candidate for this position, to what extent do you approve of him for the position?” and “When considering Sam Austin as a candidate for this position, to what extent do you approve of him for the position?” These questions were answered on a 7-point scale anchored with “1 - Don't approve at all” and “7 - Approve a great deal.” Finally, participants were given 3 open ended questions about both candidates saying, “I support Kris Walker because...” and “I support Sam Austin because...”

Participants in the opposition condition were asked, “How strongly do you oppose Kris Walker in this election?” and “How strongly do you oppose Sam Austin in this election?” These questions were answered on a 5-point scale anchored with “1 - I don't oppose “” at all” and “5 - I oppose “” intensely.” Next participants were asked, “How unqualified is Kris Walker for this position?” and “How unqualified is Sam Austin for this position?” These questions were answered on a 7-point scale anchored with “1 - Not at all unqualified” and “7 - Very unqualified.” Then participants were asked, “When considering Kris Walker as a candidate for this position, to what extent do you disapprove of him for the position?” and “When considering Sam Austin as a candidate for this position, to what extent do you disapprove of him for the position?” These questions were answered on a 7-point scale anchored with “1 - Don't disapprove at all” and “7 - Disapprove a great deal.” Finally, participants were given 3 open ended questions about both candidates saying, “I oppose Kris Walker because...” and “I oppose Sam Austin because...”

Results

On the choice confidence measure, Mindset Frame had a marginal main effect, $t(335)=1.698, p=.090$, where those who received support frames tended to be more confident than those who received opposition frames. There was a main effect of Information Valence, $t(335)=2.200, p=.029$, where those who received positive information were more confident than those presented with negative information. There was also a main effect of Decision Action, $t(335)=3.699, p=.000$, where those in the choice condition were more confident than those in the rejection condition. The confidence results showed a marginally significant interaction between Mindset Frame and Information Valence, $t(335)=1.92, p=.056$, as well as a significant interaction between Information Valence and Decision Action, $t(335)=5.1589, p<.001$. The general pattern observed in this study was very similar to that from Study 1. On the choice side, those in the positive-information/support-frame/choice condition ($M=4.69$) were more confident in their choice than any other choice condition with confidence being relatively the same for the other three choice conditions ($M_s = 4.07, 3.49, 3.39$). On the rejection side, those in the negative

information/oppose-frame/rejection condition ($M=3.71$) were more confident than any other rejection condition (M s=3.55, 3.01, 3.40, see Figures 5a,5b).

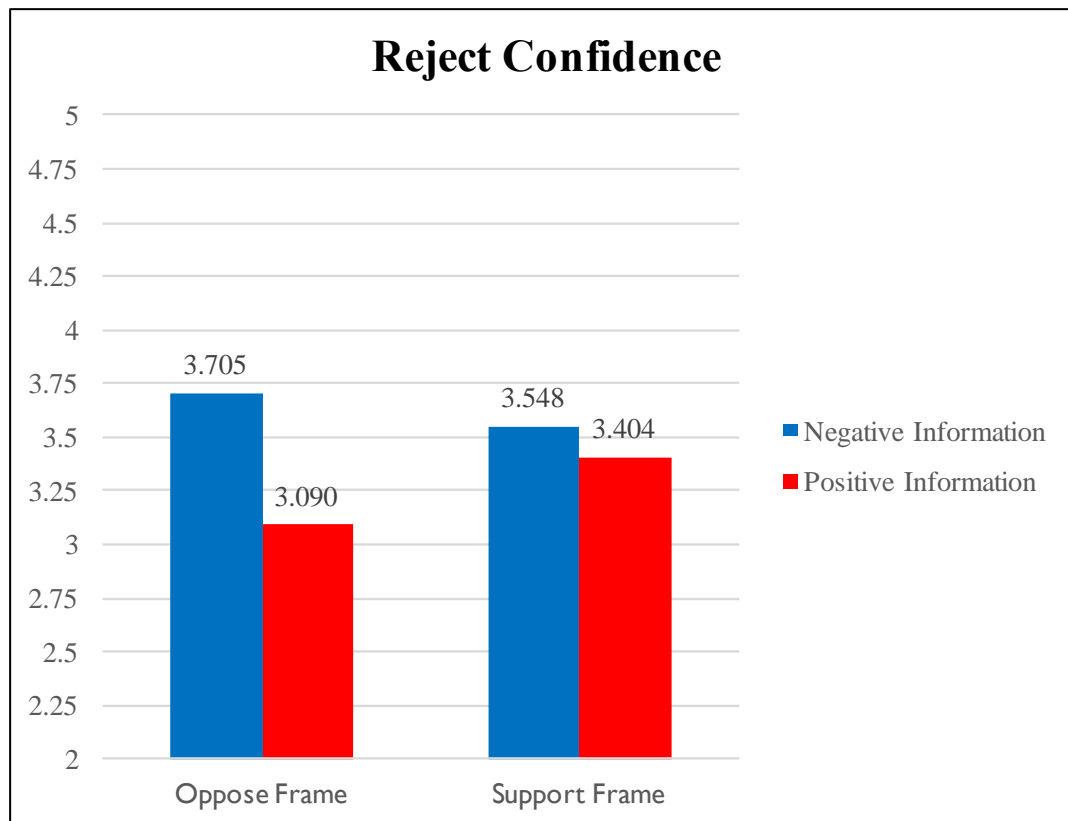


Figure 5a. Study 2 Effects of Information Valence and Mindset Frame on rejection confidence.

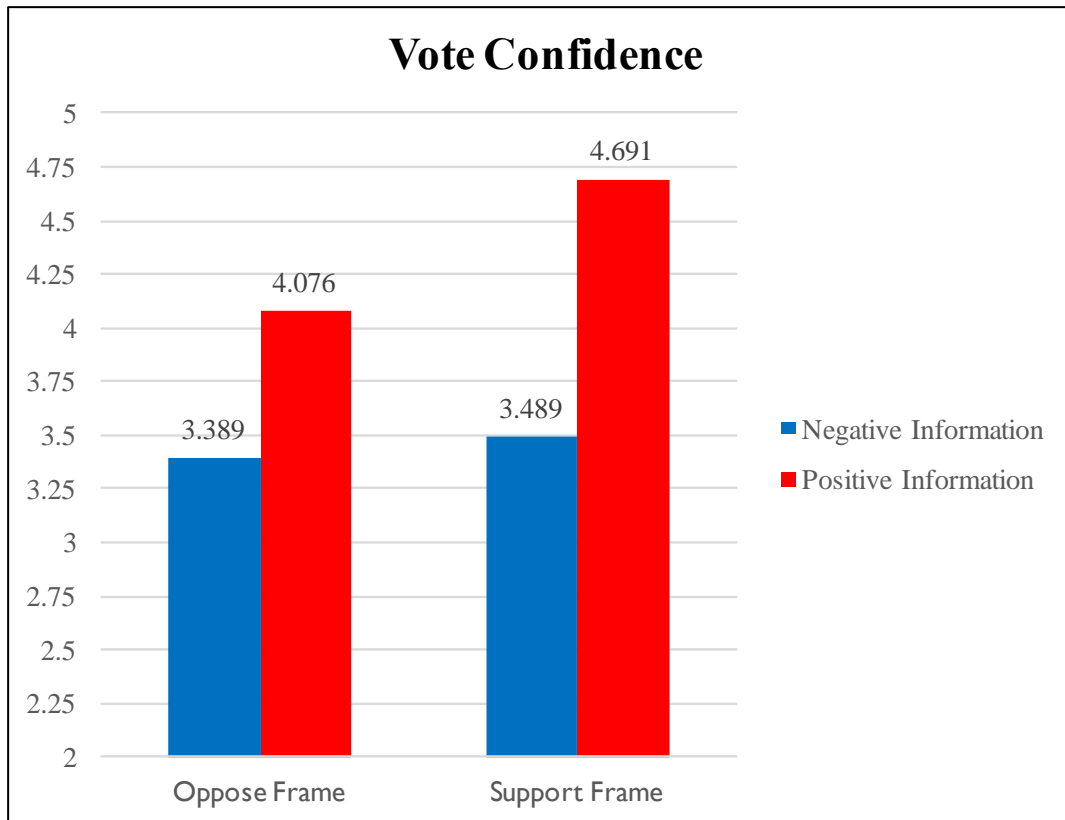


Figure 5b. Study 2 Effects of Information Valence and Mindset Frame on choice confidence.

On the ambivalence measure, Mindset Frame had a main effect, $t(335) = -3.392$, $p = .001$, as those with an oppose frame tended to be far less ambivalent compared to those framed in terms of support. That effect seems to be driven by those in the rejection condition. There was a main effect of Information Valence, $t(335) = 2.118$, $p = .035$. There was also a main effect of Decision Action, $t(335) = -4.091$, $p = .000$, where there was far more ambivalence in the rejection condition compared to the choice condition. The ambivalence results also showed a significant interaction between Information Valence and Decision Action, $t(335) = -2.991$, $p = .003$.

On the behavioral intention measure, there was a marginal main effect of Decision Action, $t(335) = 1.754$, $p = .080$, where those choosing reported stronger behavioral intentions overall than those who were rejecting. There was a marginally significant interaction between Mindset Frame and Information Valence, $t(335) = 1.837$, $p = .067$. There was also a significant

interaction between Information Valence and Decision Action, $t(335)=4.389$, $p<.001$. Again, the general pattern was that those in the positive-information/support-frame/choice condition ($M=2.631$) had stronger behavioral intentions about their choice than the other three choice conditions, ($M_s=2.429$, 1.840 , & 2.007 , see Figure 2). In the rejection condition, those with in the oppose frame/negative information/reject also had more behavioral intentions ($M = 2.442$) than the other three reject conditions ($M_s = 1.846$, 1.827 , 2.000 , see Figure 6a, 6b).

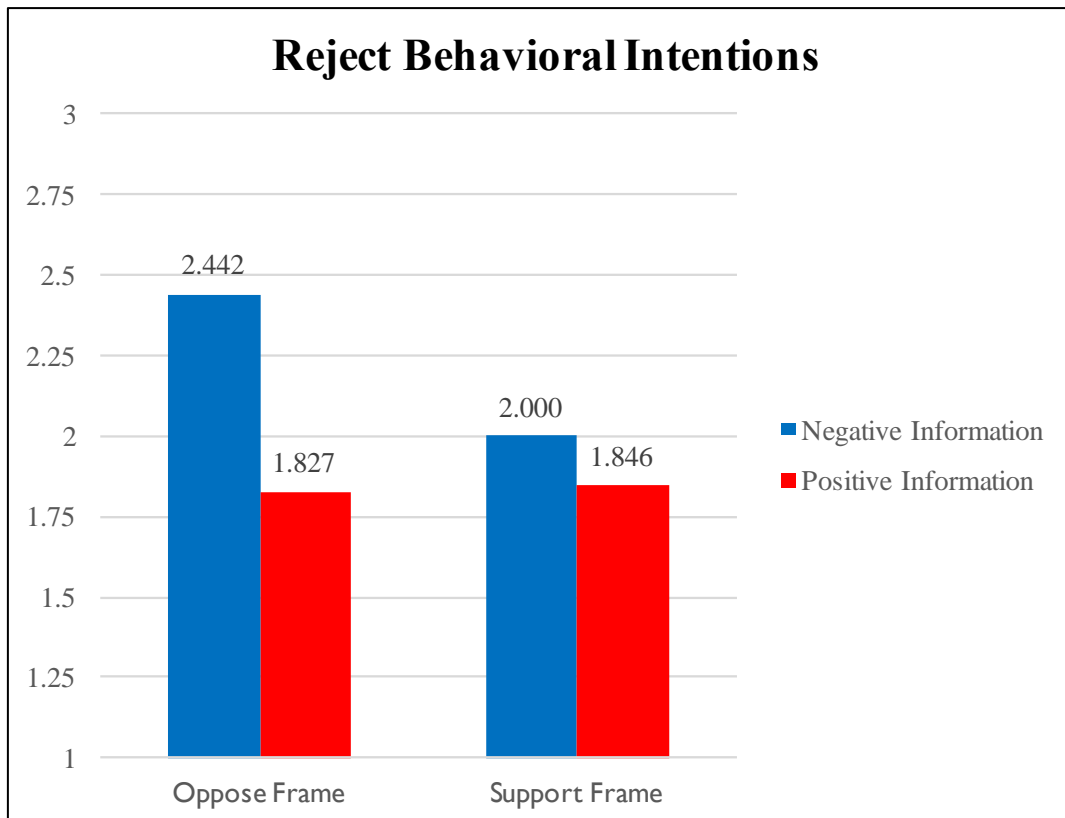


Figure 6a. Study 2 Effects of Information Valence and Mindset Frame on rejection behavioral intentions.

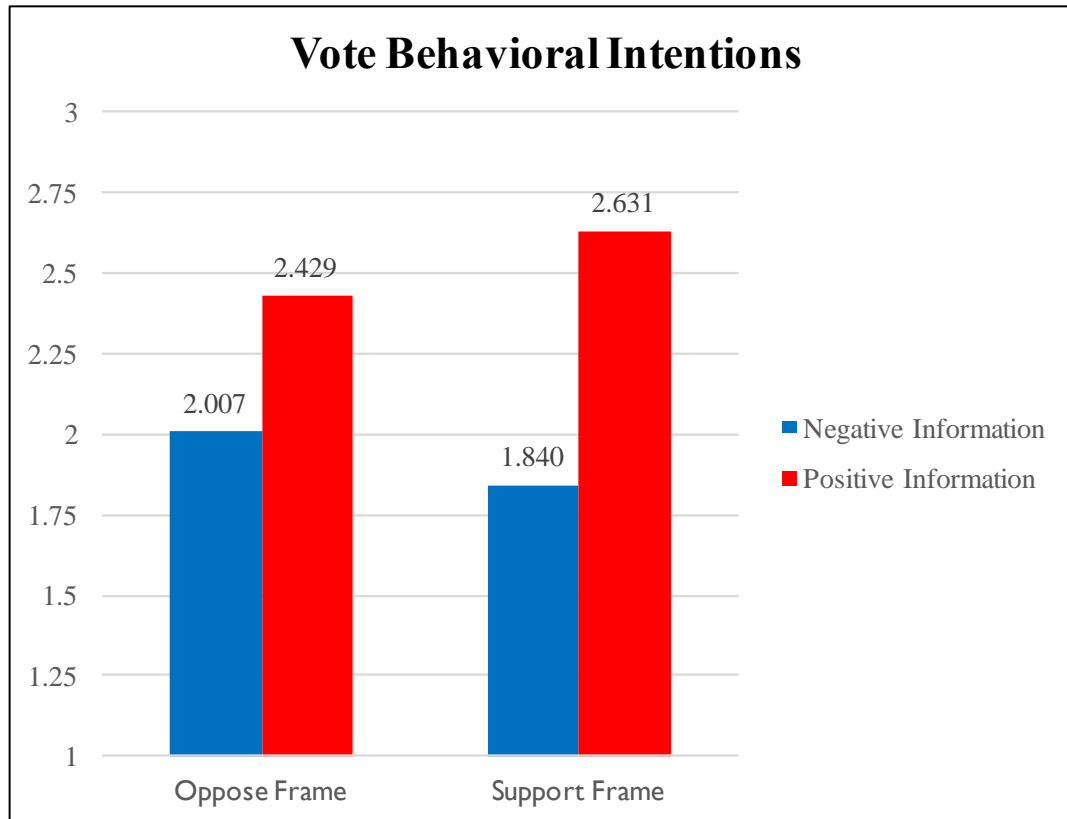


Figure 6b. Study 2 Effects of Information Valence and Mindset Frame on choice behavioral intentions.

In order to examine whether having more confidence would lead to stronger behavioral intentions, using the PROCESS macro (Hayes, 2013) I tested a mediation model (Model 4) in which confidence mediated the interaction of Information Valence and Mindset Frame on behavioral intentions (Figure 7). As noted above, that interaction had a marginally significant effect on behavioral intentions. In this model, confidence had a significant effect on behavioral intentions, such that high levels of confidence led to stronger behavioral intentions. When controlling for decision confidence, the direct effect of the Information Valence X Mindset Frame interaction was not statistically significant $b=.20$, $t(163)=1.145$, $p=.253$. The indirect effect through decision confidence was statistically significant using 5,000 percentile 95% confidence intervals, $b=.04$, 95% CI [.004, .078].

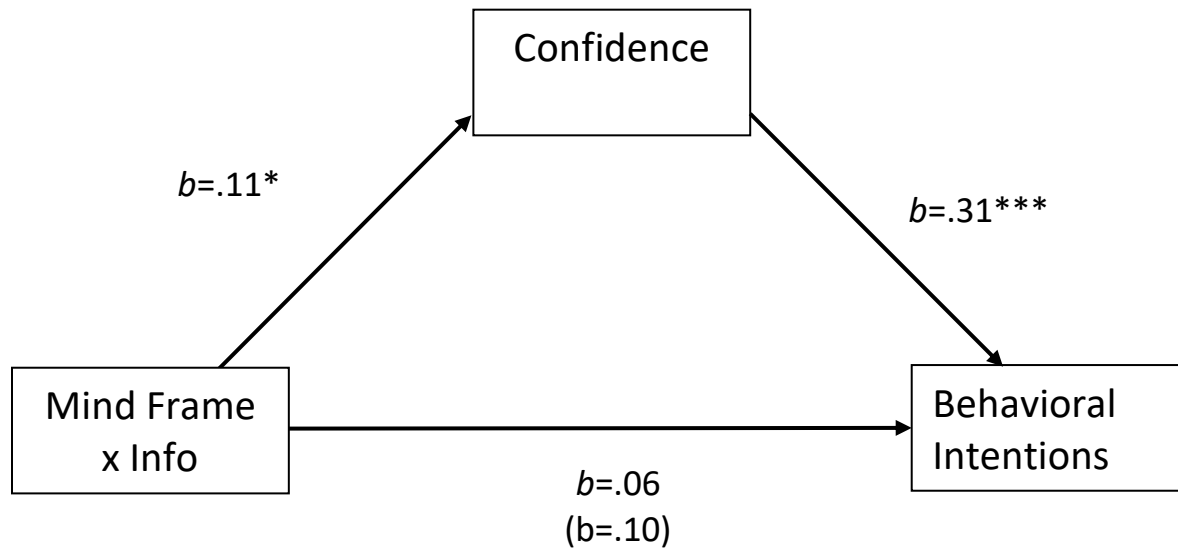


Figure 7. Confidence mediating the effects of the interaction of Mindset Frame and Information Valence on behavioral intentions.

† $p < .10$ * $p < .05$, ** $p < .01$, *** $p < .001$

I also tested a mediation model (Model 4) in which confidence mediated the interaction of Information Valence and Decision Action on behavioral intentions (Figure 8). As noted above, that interaction had a statistically significant effect on behavioral intentions. In the mediation model, confidence had a significant effect on behavioral intentions, such that high levels of confidence led to stronger behavioral intentions. When controlling for decision confidence, the direct effect of the Information Valence X Decision Action interaction was statistically significant $b=.15$, $t(163)=2.699$, $p=.007$. The indirect effect through confidence was also statistically significant using 5,000 percentile 95% confidence intervals $b=.07$, 95% CI [.031, .124].

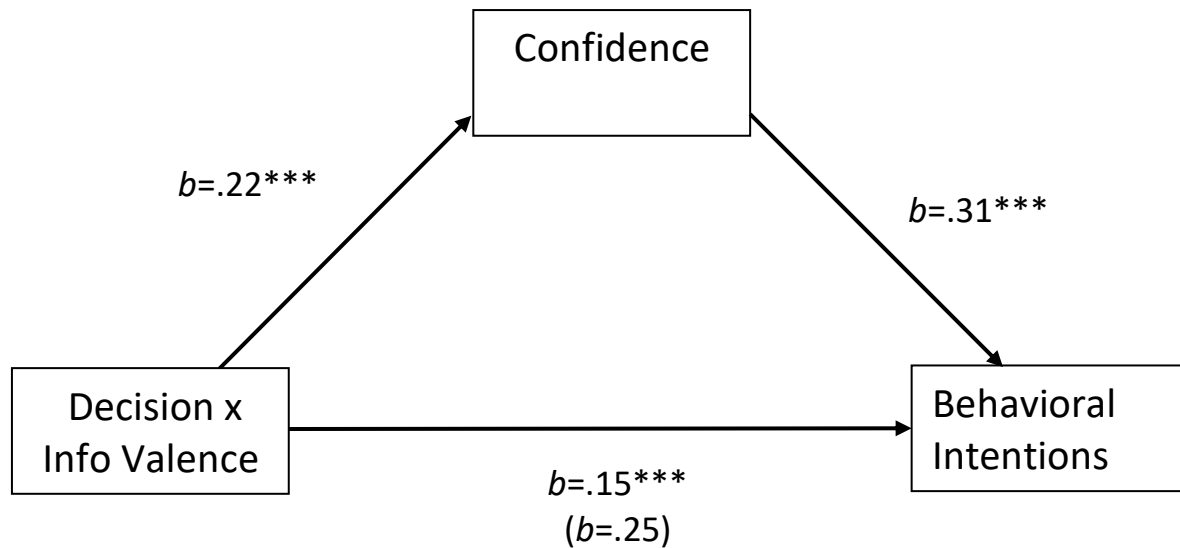


Figure 8. Confidence mediating the effects of the interaction of Decision Action and Information Valence on behavioral intentions.

† $p < .10$ * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

Study 2 generally supported my hypothesis that having a three-variable match increases one's confidence. This appears to be the case for both the choice and rejection conditions, though the pattern was clearly stronger for the choice conditions (replicating Study 1) than for the rejection conditions. The matching conditions also appeared to elicit the strongest behavioral intentions to follow through on the choice. Confidence was also shown to be a mediator for the effects of both interactions of Mindset Frame by Information Valence as well as Information Valence by Decision Action on behavioral intentions when controlling for ambivalence. Following this study, I wanted to see how having a mindset frame compares to not having a mindset frame. The Perfecto work showed that rejecting a bad option elicits the same amount of satisfaction as selecting a good option, but there was no framing in their work. I wanted to show how these results compared to theirs by including a no frame condition that would be rather similar to their design. One could imagine the two-way match in no-frame condition to act

similarly to the three-variable match because people possibly would default to thinking in terms of support when asked to choose and default to thinking in terms of opposition when asked to reject.

Study 3

Study 3 was designed to compare the three-variable matching condition to a no-frame condition (i.e. positive information/choice or negative information/reject) that has two-way matching. I theorized that choosing would make people naturally look for reasons to support the chosen option, whereas rejecting would make people naturally look for reasons to oppose the rejected option. If so, then the no-frame condition alongside a two-variable match (i.e., positive information/choice or negative information/reject) would act like a three-variable matching condition rather than the mismatching conditions. In order to test this, the design for Study 3 largely paralleled the design for study 2. The only change was adding a no-frame condition to the two levels of Mindset Frame used in Studies 1 and 2 (i.e., support frame and opposition frame).

Methods

Participants and design: Three hundred and ninety-eight undergraduate students at Ohio State University took part in this online study in return for credit in their introduction to psychology courses. Participants were randomly assigned to a condition of the 2 (Information Valence: positive information/negative information) x 3 (Mindset Frame: support frame/opposition frame/no frame) x 2 (Action: choose/reject) between-participants experimental design.

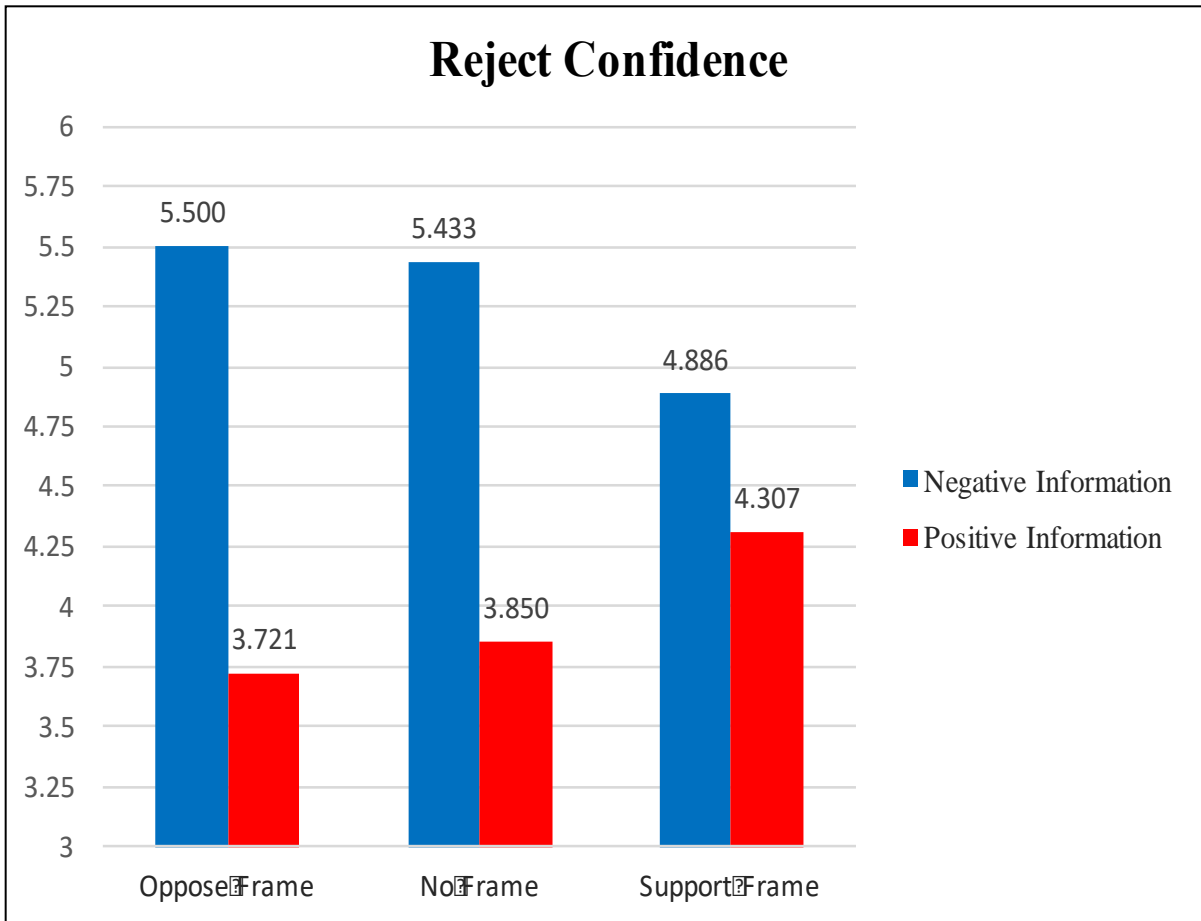
Procedure

For Study 3, participants were signed up to take this study and were sent a link to this study to take online using the online survey program Qualtrics. Participants were again told that

they would be presented with two candidates running for an open seat on the local city council. The same fictional candidates were used from study 1 and study 2 named Kris Walker and Sam Austin. The rest of the methods for Study 3 were kept the same from Study 2, with the only other addition being a satisfaction measure to be able to compare to the Perfecto work on choice versus rejection.

Results

Initial analysis was performed excluding the no frame condition to examine replication of the results of the previous studies. On the choice confidence measure, the interaction between Information Valence and Decision Action was replicated from Study 2, $t(260)=5.706$, $p<.001$. However, the interaction between Mindset Frame and Information Valence, found in both Study 1 and 2, was not replicated, $t(260)=.733$, $p=.464$. The positive information/oppose-frame/choice condition had much higher confidence ($M = 5.28$) than it had in either of the prior studies, so that could potentially account for the difference. The general pattern of a boost in confidence for the three-variable match was replicated from both the prior studies, however. In the choice condition, those with a three-variable match (i.e., support frame/positive information/choice) were more confident about their choice ($M = 5.24$) than two of the cells with mismatches (i.e., support frame/negative information/choice, $M = 4.24$, or opposition frame/negative information/choice, $M = 3.71$). Also, in the rejection condition, those with a three-variable match (i.e. oppose frame/negative information/reject) were more confident ($M = 5.50$) than those with mismatches (M s = 4.31, 3.72, 4.89, see Figures 9a, 9b).



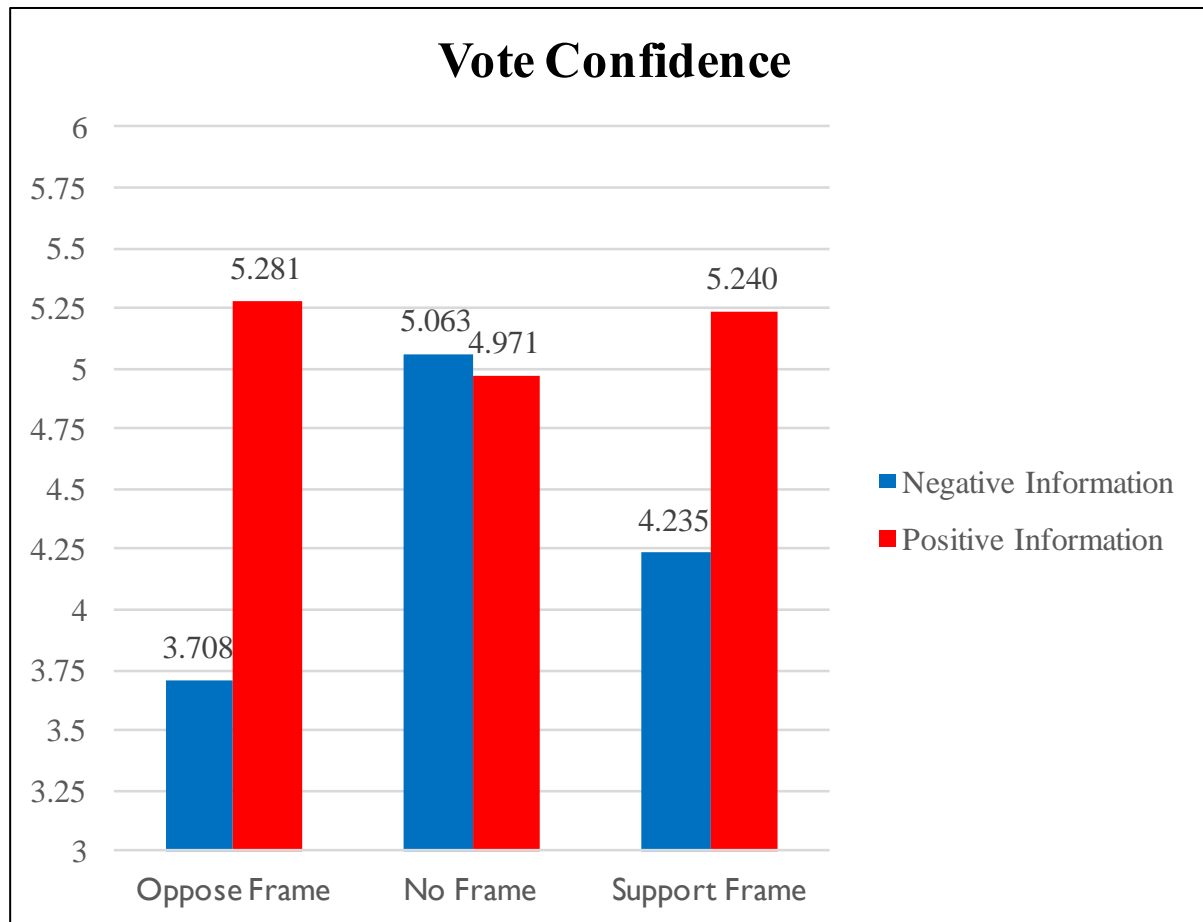


Figure 9b. Study 3 Effects of Information Valence and Mindset Frame on choice confidence.

On the ambivalence measure with the no frame conditions excluded, the two main effects were replicated from Study 2. There was a marginal main effect of Mindset Frame $t(260)=-1.514, p=.131$. There was also a main effect of Information Valence, $t(260)=3.300, p=.001$. The ambivalence results also showed a significant interaction between Information Valence and Decision Action, $t(335)=-2.991, p=.003$, where those in the positive information/rejection conditions tended to be far more ambivalent compared to those presented with negative information.

On the behavioral intentions measure with the no frame conditions excluded, there was a marginal main effect of Decision Action, $t(260)=1.675$, $p=.095$, where those choosing reported stronger behavioral intentions overall than those who were rejecting. There was also a significant interaction between Information Valence and Decision Action, $t(260)=5.314$, $p<.001$. The interaction between Information Valence and Mindset Frame was not statistically significant, but it was trending in that direction, $t(260)=1.458$, $p=.146$. The general pattern of a boost in behavioral intentions for three-variable match conditions was replicated from both the prior studies. In the choice condition, those with a three-variable match (i.e. support frame/positive information/choice) reported stronger behavioral intentions ($M = 3.836$) than those with mismatches ($Ms = 3.188, 2.427, 2.285$). In the rejection condition, those with a three-variable match (i.e. oppose frame/negative information/reject) also reported stronger behavioral intentions ($M = 3.282$) than those with mismatches ($Ms = 2.250, 2.140, 2.800$, see Figures 10a, 10b).

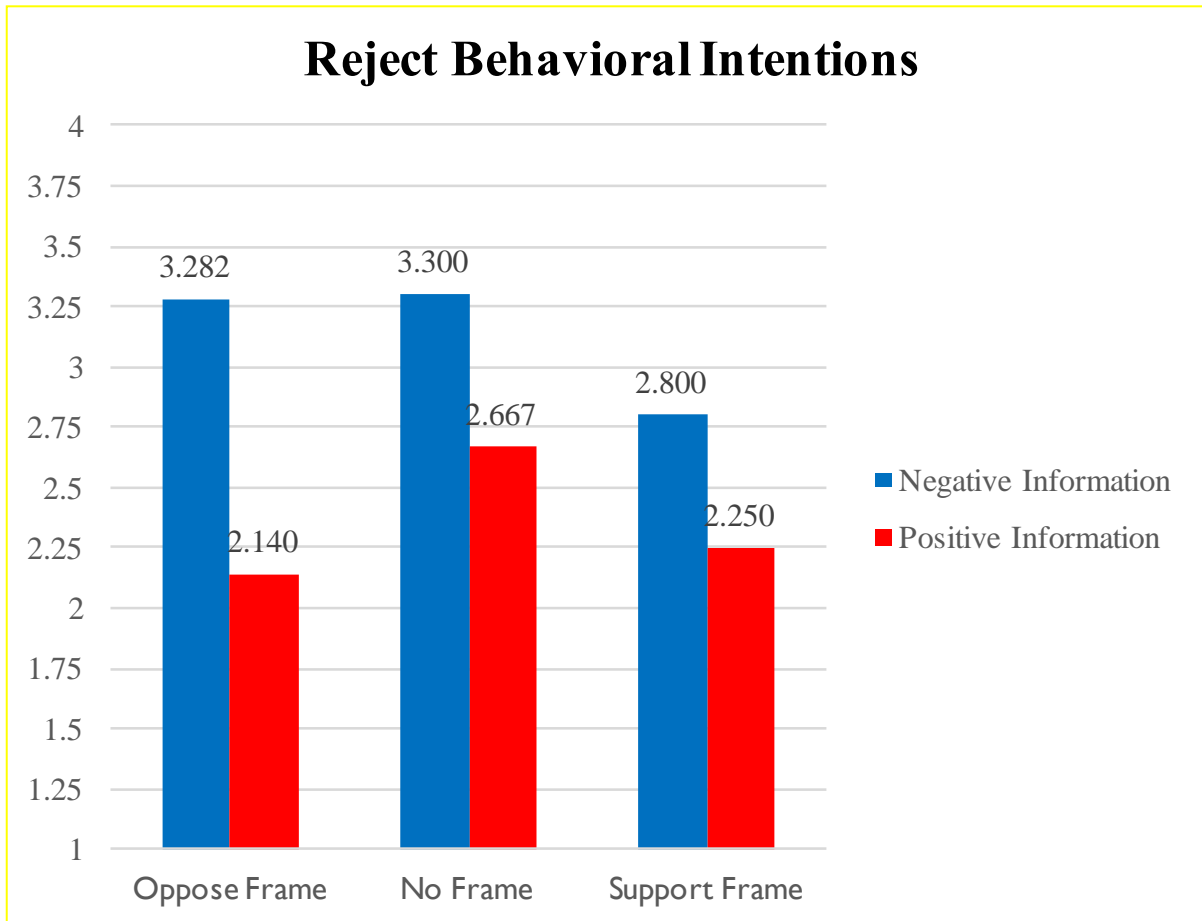


Figure 10a. Study 3 Effects of Information Valence and Mindset Frame on rejection behavioral intentions.

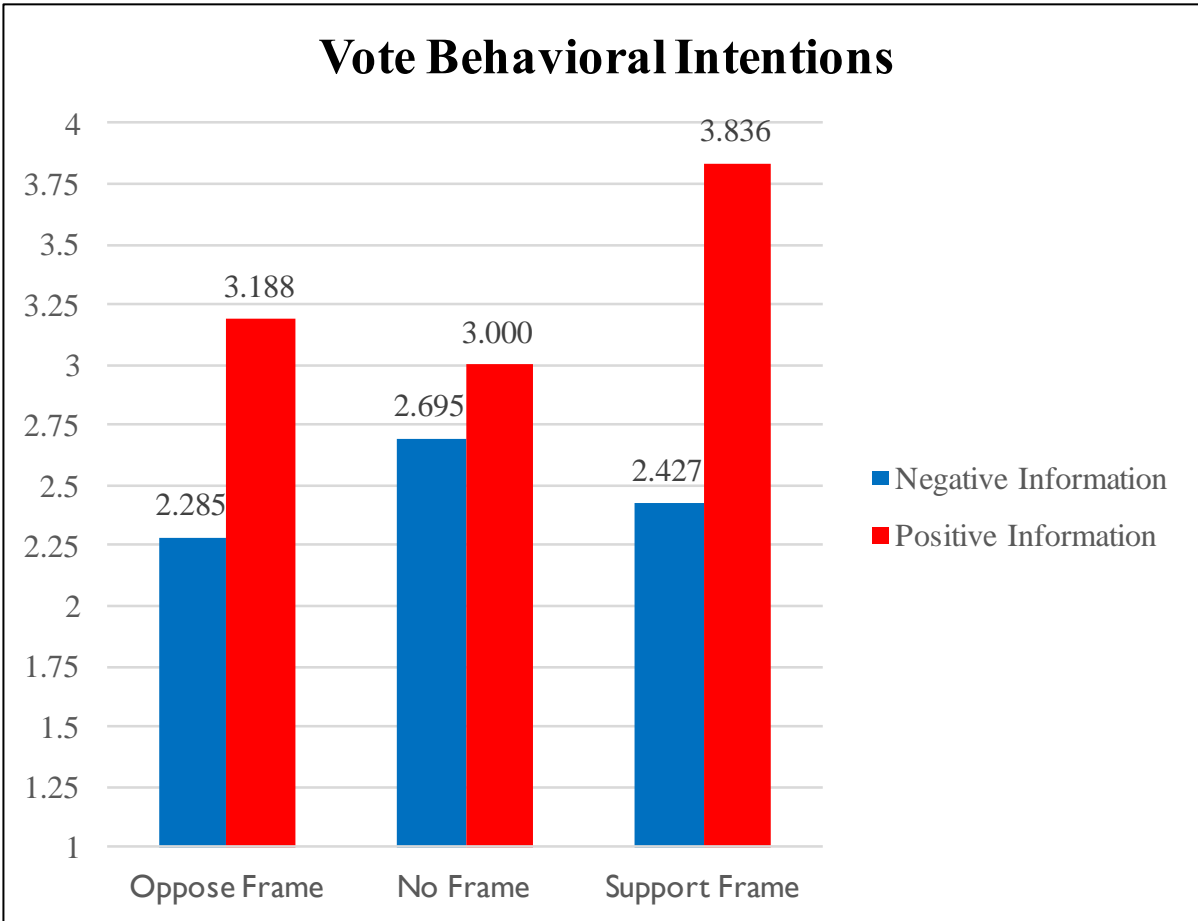


Figure 10b. Study 3 Effects of Information Valence and Mindset Frame on choice behavioral intentions.

Mediation analyses. In order to examine whether having more confidence would lead to stronger behavioral intentions, using the PROCESS macro (Hayes, 2013) I tested a mediation model (Model 4) in which confidence mediated the interaction of Information Valence and Decision Action on behavioral intentions (Figure 7). As noted above, that interaction had a significant effect on behavioral intentions. In the mediation model, confidence had a significant effect on behavioral intentions, such that high levels of confidence led to stronger behavioral intentions. When controlling for decision confidence, the direct effect of the Information Valence X Decision Action interaction remained statistically significant $b=.29$, $t(262)=3.115$, $p=.002$. The

indirect effect through decision confidence was also statistically significant using 5,000 percentile 95% confidence intervals, $b=.22$, 95% CI [.136, .323].

I also tested a mediation model (Model 4) in which confidence mediated the interaction of Information Valence and Mindset Frame on behavioral intentions (Figure 8). In this study, that interaction did not have a statistically significant effect on behavioral intentions, but was trending in that direction, $t(260)=1.458$, $p=.146$. In the mediation model, confidence had a significant effect on behavioral intentions, such that high levels of confidence led to stronger behavioral intentions. When controlling for decision confidence, the direct effect of the Information Valence X Mindset Frame interaction was not statistically significant $b=.12$, $t(262)=1.347$, $p=.179$. The indirect effect through confidence was also not statistically significant using 5,000 percentile 95% confidence intervals $b=.03$, 95% CI [-.045, .104].

Default Mindset frames. The cells I focused on within the no-frame condition are the two-way matching cells (i.e., positive information/choose or negative information/reject). On the confidence measure on the choice side, when the mean of the three-variable match condition (i.e., support frame/positive information/choice; $M=5.243$) was compared with the mean of the two-way match condition (i.e., no frame/positive information/choice; $M=4.971$) they are not significantly different, $F<1$. When the mean of the two-way match condition ($M=4.971$) was compared with the means across all of the of the mismatching conditions ($M=4.541$), it was directionally consistent but did not reach significance, $F(1,167)=1.811$, $p=.18$. However, the positive information/oppose frame/choice condition was rather atypical compared to the other studies, in the sense that it was significantly more confident than it has ever been. If one were to

exclude that condition from analysis then the two-way match would indeed be significantly more confident than the mismatching conditions, $F(1,135)=4.673, p=.032$.

On the confidence measure on the rejection side, when the mean of the three-variable match condition ($M=5.500$) was compared with mean of the two-way match condition ($M=5.433$) they are not significantly different as well, $F<1$. When the mean of the two-way match condition ($M=5.433$) was compared with the means of the mismatching conditions ($M=4.205$), it was significantly more confident, $F(1,160)=10.770, p=.001$. However, the means of the two-way match and the two-way mismatch were not statistically significant, $F<1$, so these results are only suggestive of default mindset frames with the positive information.

On the behavioral intentions measure on the choice side, when the mean of the three-variable match condition ($M=3.836$) was compared with the mean of the two-way match condition ($M=3.00$) they were significantly different, $F(68)=5.509, p=.022$. When the mean of the two-way match condition ($M=3.300$) was compared with the means of the mismatching conditions ($M=2.634$), it was in the expected direction but did not reach significance, $F(1,167)=1.370, p=.243$. However, when the atypical cell mentioned above was excluded from analysis, the comparison gets much closer to being significantly different, $F(1,135)=3.106, p=.08$.

On the behavioral intentions measure on the rejection side, when the mean of the three-variable match condition ($M=3.282$) was compared with the mean of the two-way match condition ($M=3.300$) they were not significantly different, $F<1$. When the mean of the two-way match condition ($M=3.300$) was compared with the means of the mismatching conditions ($M=2.477$), it was significant, $F(1,160)=7.663, p=.006$.

Study 3 Discussion

The goals for Study 3 were to replicate the pattern from Study 2 and to examine how support- or opposition-framed choices or rejections of similarly desired or undesired options compare to unframed choices or rejections. Study 3 replicated the two-way interaction between Information Valence and Decision Action found in Study 2. However, Study 3 did not replicate the interaction between Mindset Frame and Information Valence as found in Studies 1 and 2 (though the pattern of means fell in the same general direction). One possible explanation for this would be the abnormally high levels of confidence found in the positive information/opposition-frame/choice condition. Confidence scores for that condition were nowhere near as high in the prior two studies. The general pattern of the three-variable matching cells being more confident and having more behavioral intentions was also replicated within Study 3.

Study 3 also appears to show us that when there is no frame given people tend to default to a matching frame. In the unframed choice condition, the two-way match (i.e. positive information/choice or negative information/rejection) was relatively the same as the three-variable match in terms of choice confidence. Both conditions were also significantly more confident than the mismatching conditions. The same could be said for behavioral intentions, as those in the two-way match and the three-variable match were relatively the same but reported significantly stronger behavioral intentions than in the mismatching cells.

This provides some evidence for people defaulting to supportive thinking when faced with a choice and people defaulting to opposition thinking when faced with a rejection. In order to be able to make a choice, people need to consider the positives about the things they would be choosing. Supportive mindset framing gets people to do just that, so it would make sense that support mindset would become the default when looking to choose one of two positive things. The same relationship appears to exist between opposition mindset and rejections as well.

Whereas, people need to consider the negatives about the things they would be choosing. Opposition mindset gets people to think of the negatives, so it would also make sense that an oppositional mindset would become the default when looking to reject one of two negative things. However, the evidence for this is not definitive in that “mismatches” with any default mindset did not differ from the “matches” to the same degree as “mismatches” with explicit framing of the mindsets.

General Discussion

These studies diverge from the original valence framing studies by examining cases where people choose between similarly desirable or undesirable choice options. Instead of framing people’s preferences per se (when one option is clearly preferred), this work frames people’s mindsets about each of the options and deals with settings in which both options are relatively similar in valence (so there is no strong preference). Previous research suggests that such settings are generally associated with low levels of choice confidence (Litt & Tormala, 2010). Yet, the current research suggests that mindset framing can influence the level of choice confidence that is developed. Study 1 showed that those in the positive information/support frame condition were significantly more confident than any of the other conditions. This shows the distinct break from the original valence framing work, as the original work suggested that opposition mindsets lead to the most choice confidence. Another condition of importance from Study 1 is the negative information/opposition mindset condition. One reason to conduct this study in the first place was to examine the context of the 2016 election. Many voters in that election viewed the two candidates as rather negative, and simultaneously held opposition mindsets for both options. In Study 1, the negative information/opposition mindset condition produced very little confidence and weak behavioral intentions. This provides some evidence

that when faced with similarly undesirable options, people might become more likely to do nothing than to take affirmative action (i.e., to choose one of the options).

The results from Study 1 do not mean that similarly negative options would always lead to choice doubt and inaction, however. Indeed, Perfecto and colleagues (2017) have recently found that rejection of one of two negative options can lead to as much choice satisfaction (which is strongly related to choice confidence) as choice of one of two positive options. In Study 2, both choices and rejections were examined. Results replicated the Perfecto et al. (2017) pattern and also produced an overall Mindset Frame X Information Valence interaction suggesting that 3-way matches generally led to greater choice confidence and behavioral intentions than mismatching conditions. For example, in the rejection condition, a three-variable match (negative information/oppose frame/rejection) produced more confidence and behavioral intentions than the mismatching conditions. The overall pattern combining both the rejection and choice conditions also supported this general pattern.

Study 3 was designed to replicate the results from Study 2 while also examining whether people spontaneously take on a particular framing mindset based on whether they are led to choose versus reject as their decision action. In other words, the study compared the three-variable match to the two-way match examined in the Perfecto et al. (2017) work. The results from Study 3 showed that the two-way match (without mindset frames) was most similar to the three-variable match (with mindset frames), though potential “mismatches” from default frames were not as distinct as they tended to be from explicit mindset framing conditions. This result may not be definitive, but it suggests that people might instinctively think to support when asked to choose and instinctively think to oppose when asked to reject.

Another notable aspect of the current work is that it extended beyond choice confidence per se. Some similar patterns were created on measures of ambivalence about the choice, but these patterns did not tend to hold up when controlling for choice confidence. More importantly and related to the idea of choice strength, the level of confidence in the choice tended to relate consistently with behavioral intentions. One of the key reasons to pay attention to choice confidence would be to get a better handle on whether the person is likely to follow through on that choice over time. Folke et al. (2016) examined this in regard to likelihood of changing the choice later when given the opportunity to do so, and in their work, higher levels of choice confidence led to fewer changes in choices at later points in time. In the current work, I examined choice strength in terms of willingness to vote in a way that is in line with the choice and found that higher levels of choice confidence consistently led to stronger intentions to vote in a manner consistent with the initial choice. In this context, it is important to note that I examined behavioral intentions instead of actual behavior. In follow up research, one could examine less hypothetical situations and incorporate actual behavior that confirms or disconfirms the initial choice. Behavioral intentions tend to predict behavior quite well (Armitage & Conner, 2001), and experimental evidence also supports causal influences of intentions on behavior (Webb & Sheeran, 2006). Therefore, it seems likely that patterns found on behavioral intention would tend to parallel those found on actual behavior (such as voting). But the hypothetical nature of the current setting could make it important to examine such possibilities directly.

Going into this research, I had believed that when faced with similarly undesired options, people would be more conflicted than those faced with similarly desired options. However, the studies showed that this was not the case. People, when faced with similarly desired options, good or bad, were more or less equally conflicted no matter their mindset. The real driving factor

turned out to be confidence, as noted above. These effects were shown in a political context, so it would be interesting to run follow up studies in different fields such as health and social relations to see whether these results can be generalized across domains.

Another line of research that is potentially relevant concerns cognitive dissonance theory. There have been many years of research on cognitive dissonance and its impact on difficult choices. Festinger (1964) showed that when difficulty in a choice is increased, the tendency to justify the alternative is also increased. Most of the dissonance work has had a focus on post-decision phenomenon, such as justifying the alternative, whereas support and opposition frame may well affect initial processing of the choice options. If such mindset frames do have post-decision effects, however, it would be interesting to consider whether support or opposition mindsets can affect how easily one can resolve the dissonance from a difficult choice (i.e., a choice between two close alternatives). The closest these studies come to that question would be to say that when everything is matching, it makes the choice easier and there is supposed to be less dissonance in easier choices. It would be interesting to examine whether there were any dissonance related mechanisms at play with future research.

One other direction that I have not yet been able to follow would be to compare the similarly desired options to the original valence framing when a clear preference exists. In order to test this, one could use the similarly desired or undesired options that are presented in the current studies but use a single valence frame as done in the original Bizer and Petty (2005) work. That is, after an initial choice, one could ask participants to think of that choice in terms of supporting the chosen option or opposing the unchosen option. One might predict that when those with similarly desirable (positive) options are asked to support only one of those options, they might be more confident than those asked to oppose one of the options. If one has positive

information and is asked to oppose, there would very little information to use in that opposition, as seen in the current studies. This would presumably decrease one's confidence. If that result were found, it would represent a case in which valence framing does not create stronger preferences through opposition.

All in all, these studies seem to provide support for a three-variable match driving confidence and behavioral intentions. If one wants someone to vote a certain way, it seems important to have the Information Valence, Mindset Frame, and Decision Action all leading in the same direction. When the different components are not leading in the same direction, the choice is made with less confidence and their behavior becomes less predictable. In the current work, this is the case for whether people are asked to choose or reject a candidate. If faced with negative candidates, one might predict higher turn out if the election is framed as asking people to reject a candidate than to choose one. As such, future research might connect these patterns back to the original valence framing work and focus more on the behavioral outcomes.

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Appendix A: Positive Candidates Condition

Kris Walker	Sam Austin
Kris Walker is running for public office for the first time.	Sam Austin has held public office since 2001.
Walker studied political science at Northwestern University.	Austin studied sociology at Boston College.
Walker achieved a bachelors in economics from Northwestern University.	Austin achieved an MBA from Boston College.
Walker volunteers at a local homeless shelter for 8 hours a month.	Austin volunteers at a local hospital for 15 hours a month.
Coworkers describe Walker as dutiful, honest, and warm.	Coworkers describe Austin as dependable, sincere, and humorous.
On the weekends, Walker is an assistant coach for son's little league baseball team.	On the weekends, Austin reads to children at a local library.

Appendix B: Negative Candidates Condition

Kris Walker	Sam Austin
Kris Walker has never held a public office position.	Sam Austin is running for a public office position for the first time.
Walker earned an Associate's degree in Entrepreneurship from Highland Community College.	Austin earned an Associate's degree in Business Management from Northampton Community College.
Walker holds charity functions that raise funds and scholarships for local schools.	Austin occasionally makes donations of pens and pencils to local schools.
Walker resigned from their last job after allegations of embezzlement. Charges were later dropped due to insufficient evidence.	Austin was charged for DUI, but successfully completed the sentenced community service.
On the weekends, Walker is an assistant coach for son's little league baseball team.	Austin left their last job after disagreements regarding the future of the company.
Coworkers describe Walker as narrow-minded, truthful, and at times rude.	On the weekends, Austin reads to children at a local library.